

EXHIBIT B

Exhibit 5 to
**Intellectual Ventures I LLC's and Intellectual Ventures II LLC's
Preliminary Infringement Contentions**

**Infringement Claim Chart of
U.S. Patent No. 7,324,469 (“469 Patent”)**

The Accused Systems and Services include without limitation Southwest systems and services that provide satellite-based onboard WiFi in its airplanes; all past, current, and future systems and services that operate in the same or substantially similar manner as the specifically identified systems and services; and all past, current, and future Southwest systems and services that have the same or substantially similar features as the specifically identified systems and services (“Example Southwest Count 5 Systems and Services”, or “Southwest Systems and Services”).

On information and belief, Southwest’s Systems and Services directly infringe the asserted claims of the ‘469 patent, either literally or under the doctrine of equivalents, through at least using satellite-based onboard WiFi in its airplanes. In addition, Southwest directly infringes the ‘469 patent by testing the Southwest Systems and Services. On information and belief, Southwest, with knowledge at least since the time of filing the complaint, also indirectly infringes the ‘469 Patent by inducing its employees and customers to use Southwest Systems and Services, and provides documents that include instructions regarding how to use Southwest Systems and Services in an infringing manner. On information and belief, Southwest provides instructions on how to use the Southwest Systems and Services in an infringing manner, the use of which results in infringement of the ‘469 Patent claims through performance of the claimed methods. On information and belief, Southwest also indirectly infringes by contributorily infringing the ‘469 Patent by selling, offering to sell, or importing components used in the Southwest Systems and Services that do not have substantial non-infringing uses.

Consistent with this Court’s Standing Order Governing Proceedings (OGP), IV identifies satellite-based onboard WiFi as used in Southwest’s systems and offerings as the Accused Instrumentality. Information regarding how specifically Southwest implements WiFi, including for which products and offerings, is generally not public. IV intends to obtain discovery regarding how WiFi is used and implemented in Southwest products and services and will update its infringement positions once this discovery is completed.

IV does not intend this exemplary claim chart to be limiting, and IV reserves its rights to pursue other accused instrumentalities, patent claims, evidence, and infringement arguments in this case. Discovery has yet to begin, and this case is still in its initial stages. Accordingly, IV reserves the right to amend and/or supplement these contentions to the full extent allowed by the Court, including but not limited to, incorporating additional information, claims, theories, and / or accused products.

On information and belief, the Southwest Systems and Services provide onboard WiFi in its airplanes.

How to Get Connected ^



Source: <https://www.southwest.com/inflight-entertainment-portal/>.¹

We're excited to announce that as of yesterday, March 9, 2023, our first aircraft equipped with hardware from our new WiFi vendor, Viasat, has entered service. Viasat is an industry leader, and we're excited about the increased connectivity and reliability that Viasat will provide. As we prepare for additional Viasat-equipped aircraft deliveries, we're also making significant progress updating our existing fleet with new Anuvu hardware (our original WiFi vendor). We have now upgraded more than 400 aircraft and are well on our way to upgrading the entire fleet by the third quarter of this year.

Between our upgraded Anuvu hardware and integration of Viasat, we're bringing a faster, more reliable WiFi experience. In addition to improved WiFi quality, Viasat offers Customers the ability to trade paid internet connectivity between personal devices (known as "device swapping"). For example, if a Customer has paid for Internet using their laptop, they can use the "swap device" function in the Inflight Entertainment Portal to switch connectivity to their phone.

¹ All sources cited in this document were publicly accessible as of the filing date of the Complaint.

	Anuvu Legacy	Anuvu Upgraded	Viasat
Improved Speeds and Reliability	✗	✓	✓
Streaming (when authenticated for Internet)	✗	✓	✓
Device Swap	✗	✗	✗
Free Entertainment, Texting, and Flight Tracker	✓	✗	✓
		✓	✓
		✓	✓

Source: <https://www.swamedia.com/southwest-stories/wifi-modernization-first-viasat-aircraft-enters-service-MC5XTXWTLWNESJDQR41ZQBID2I>.

U.S. Patent No. 7,324,469 (Claim 24)	
Claim 24	Example Southwest Count 5 Systems and Services
[24.pre] An Internet Hotspot comprising:	<p>To the extent this preamble is limiting, on information and belief, the Southwest Count 5 Systems and Services include an Internet Hotspot.</p> <p>On information and belief, Southwest has partnered with at least Viasat and Anuvu² to provide its passengers with in-flight Wi-Fi connectivity.³ Southwest aircraft are equipped with at least Viasat and Anuvu's In-Flight Connectivity system.</p> <p>We're excited to announce that as of yesterday, March 9, 2023, our first aircraft equipped with hardware from our new WiFi vendor, Viasat, has entered service. Viasat is an industry leader, and we're excited about the increased connectivity and reliability that Viasat will provide. As we prepare for additional Viasat-equipped aircraft deliveries, we're also making significant progress updating our existing fleet with new Anuvu hardware (our original WiFi vendor). We have now upgraded more than 400 aircraft and are well on our way to upgrading the entire fleet by the third quarter of this year.</p> <p>Between our upgraded Anuvu hardware and integration of Viasat, we're bringing a faster, more reliable WiFi experience. In addition to improved WiFi quality, Viasat offers Customers the ability to trade paid internet connectivity between personal devices (known as "device swapping"). For example, if a Customer has paid for Internet using their laptop, they can use the "swap device" function in the Inflight Entertainment Portal to switch connectivity to their phone.</p>

² Based on publicly-available information, Plaintiffs have identified Viasat and Anuvu as Wi-Fi and/or In-Flight Connectivity (IFC) providers for Southwest. To the extent Southwest has used other IFC providers to provide satellite-based Internet connectivity to its customers, Plaintiffs reserve right to investigate such use.

³ On information and belief, Southwest has also used other providers, such as Panasonic, to provide connectivity services to its customers. Source: <https://paxex.aero/southwest-airlines-viasat-inflight-wifi-power/>. On information and belief, to the extent such connectivity services are satellite-based, they operate in a manner similar to the systems described in this claim chart. Discovery has not begun, and IV intends to seek discovery to identify all of Southwest's connectivity providers and systems implemented by Southwest using systems provided by such providers that infringe the '469 Patent.

U.S. Patent No. 7,324,469 (Claim 24)			
Claim 24	Example Southwest Count 5 Systems and Services		
	Anuvu Legacy	Anuvu Upgraded	Viasat
Improved Speeds and Reliability	✗	✓	✓
Streaming (when authenticated for Internet)	✗	✓	✓
Device Swap	✗	✗	✓
Free Entertainment, Texting, and Flight Tracker	✓	✗	✓

Source: <https://www.swamedia.com/southwest-stories/wifi-modernization-first-viasat-aircraft-enters-service-MC5XTXWTLWNESJDQR4LZQBD121>.

DOES SOUTHWEST USE VIASAT?

Yes. Southwest airlines announced in March 2023 that new aircraft with the airline will come with factory-installed Wi-Fi connectivity powered by Viasat. The Ka-band connectivity will offer faster, reliable Wi-Fi network connections for Southwest passengers. Viasat currently offers In-Flight Connectivity services to Delta Air Lines, JetBlue, American and United. The first Viasat-equipped aircraft entered service in March 2023 for various North American routes. Viasat is proud to have been selected as the provider in this partnership.

The connectivity will use three large Ka-band satellites, Viasat-1, Viasat-2 and the recently launched Viasat-3 once it completes in-orbit testing, which is expected to be late summer or the fall of 2023. Viasat is a global communications company that provides high-speed satellite internet and other communication services. It operates a satellite network that delivers broadband internet access to residential, commercial, and government customers, particularly in areas where traditional wired internet infrastructure is limited or unavailable.

Source: <https://www.rsinc.com/does-southwest-use-viasat.php>.

U.S. Patent No. 7,324,469 (Claim 24)	
Claim 24	Example Southwest Count 5 Systems and Services
	<p>Southwest, serving more than 100 million passengers each year, continues to offer the most comprehensive inflight entertainment and connectivity experience at all phases of flight, which now includes:</p> <ul style="list-style-type: none"> • Inflight WiFi available from gate-to-gate for \$8 per device per day • iMessage, available from gate-to-gate for \$2 per day, for iPhone users with iOS5 or later • Live Television streamed directly to passengers' own personal electronic devices, free of charge, courtesy of DISH • Video-on-Demand television content and movies <p>Powered by Global Eagle's satellite-based connectivity platform, the new service—in sync with gate-to-gate WiFi—is also optimized to work in all phases of flight, including on the ground.</p>
[24.a] a satellite dish communicating with the Internet via one or more data links with a satellite;	<p>On information and belief, the Southwest Count 5 Systems and Services include a satellite dish communicating with the Internet via one or more data links with a satellite.</p> <p>On information and belief, Southwest's aircraft are equipped with Viasat In-Flight Connectivity (IFC). This functionality uses satellite technology that communicates with the Internet through data links.</p> <p>We're excited to announce that as of yesterday, March 9, 2023, our first aircraft equipped with hardware from our new WiFi vendor, Viasat, has entered service. Viasat is an industry leader, and we're excited about the increased connectivity and reliability that Viasat will provide. As we prepare for additional Viasat-equipped aircraft deliveries, we're also making significant progress updating our existing fleet with new Anuvu hardware (our original WiFi vendor). We have now upgraded more than 400 aircraft and are well on our way to upgrading the entire fleet by the third quarter of this year.</p> <p>Between our upgraded Anuvu hardware and integration of Viasat, we're bringing a faster, more reliable WiFi experience. In addition to improved WiFi quality, Viasat offers Customers the ability to trade paid internet connectivity between personal devices (known as "device swapping"). For example, if a Customer has paid for Internet using their laptop, they can use the "swap device" function in the Inflight Entertainment Portal to switch connectivity to their phone.</p>

U.S. Patent No. 7,324,469 (Claim 24)			
Claim 24	Example Southwest Count 5 Systems and Services		
	Anuvu Legacy	Anuvu Upgraded	Viasat
Improved Speeds and Reliability	✗	✓	✓
Streaming (when authenticated for Internet)	✗	✓	✓
Device Swap	✗	✗	✓
Free Entertainment, Texting, and Flight Tracker	✓	✗	✓

Source: <https://www.swamedia.com/southwest-stories/wifi-modernization-first-viasat-aircraft-enters-service-MC5XTXWTLWNESJDQR4LZQBD121>.

DOES SOUTHWEST USE VIASAT?

Yes. Southwest airlines announced in March 2023 that new aircraft with the airline will come with factory-installed Wi-Fi connectivity powered by Viasat. The Ka-band connectivity will offer faster, reliable Wi-Fi network connections for Southwest passengers. Viasat currently offers In-Flight Connectivity services to Delta Air Lines, JetBlue, American and United. The first Viasat-equipped aircraft entered service in March 2023 for various North American routes. Viasat is proud to have been selected as the provider in this partnership.

The connectivity will use three large Ka-band satellites, Viasat-1, Viasat-2 and the recently launched Viasat-3 once it completes in-orbit testing, which is expected to be late summer or the fall of 2023. Viasat is a global communications company that provides high-speed satellite internet and other communication services. It operates a satellite network that delivers broadband internet access to residential, commercial, and government customers, particularly in areas where traditional wired internet infrastructure is limited or unavailable.

Source: <https://www.rsinc.com/does-southwest-use-viasat.php>.

U.S. Patent No. 7,324,469 (Claim 24)	
Claim 24	Example Southwest Count 5 Systems and Services
	<p>ViaSat-3 is a constellation of three ultra-high-capacity Ka-band geostationary satellites currently in production. The first and second payloads have already been sent to Boeing Satellite Systems for integration with the 702MP+ bus (spacecraft). This is a modified version of Boeing's 702 bus with a good deal more power (greater than 25kW per satellite), and they are expected to make the ViaSat-3 satellites some of the most high-powered ones ever built. To produce that power, the four solar panels of the traditional 702MP have been bumped to eight. These solar cells are similar to the ones used in the original Apollo moon missions and have powered more than 1,000 satellites around the globe.</p> <p>Source: https://news.viasat.com/blog/scn/what-is-viasat3.</p>

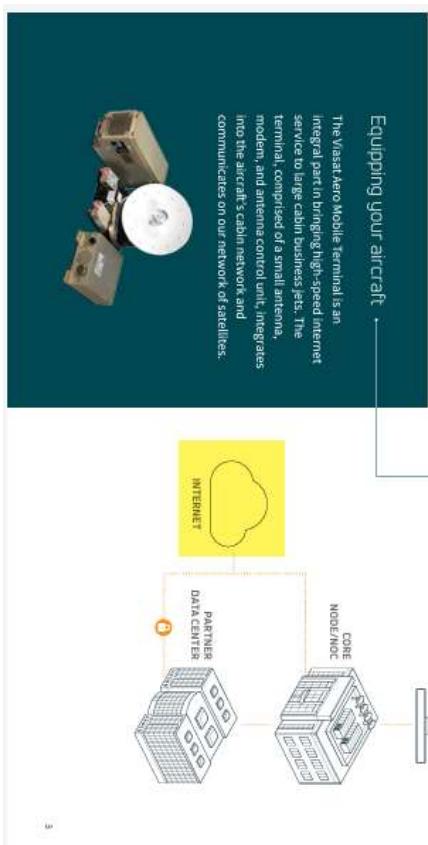
Claim 24

U.S. Patent No. 7,324,469 (Claim 24)

Example Southwest Count 5 Systems and Services

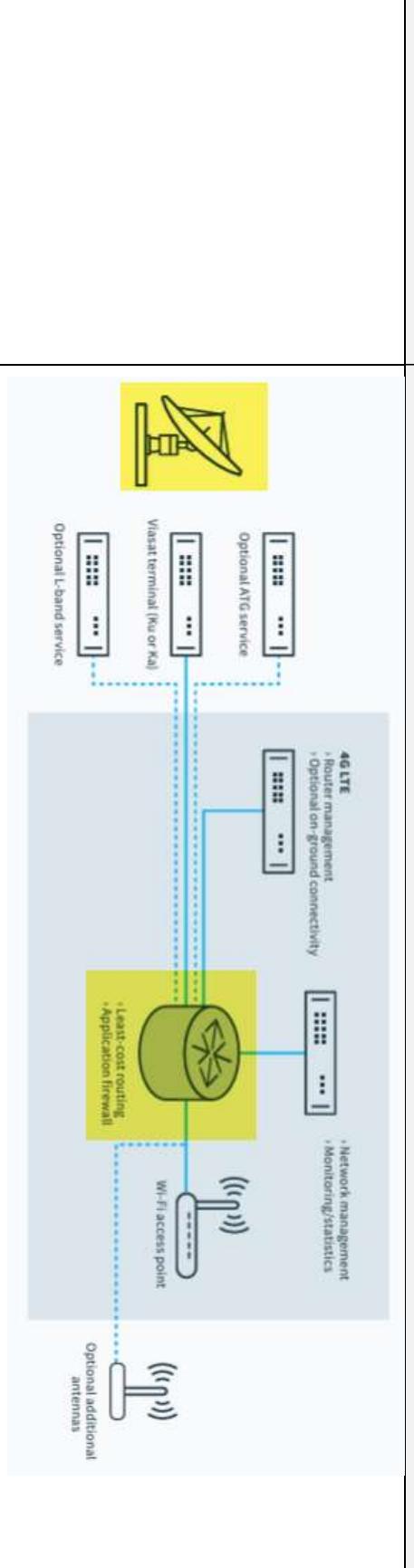
How it works
 The service uses satellites to transmit data to and from the aircraft. Passengers connect their devices to the Viasat service through aircraft cabin WiFi distribution similar to how they connect to hotspots on the ground. Data is transmitted between the plane and the ground station through the satellite. As the plane moves through the air, the system automatically performs handovers between coverage areas.

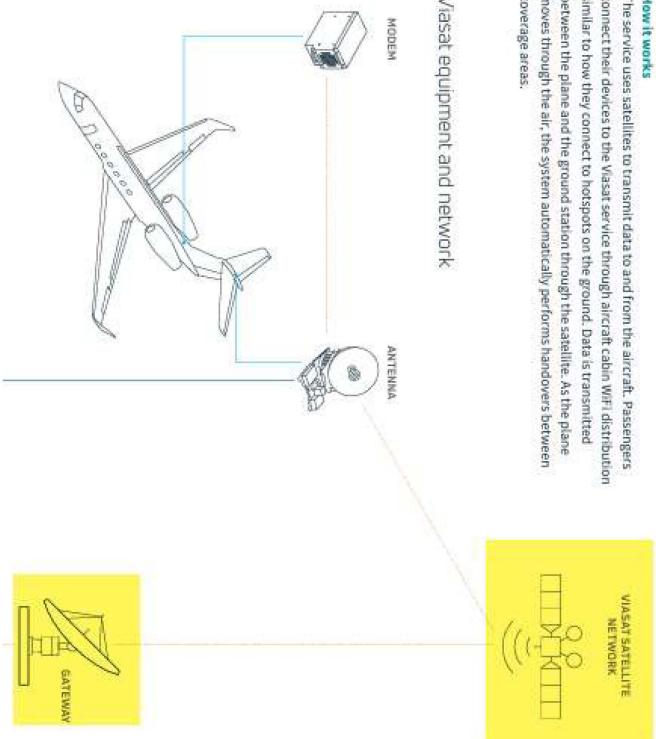
Viasat equipment and network



Source: https://www.viasat.com/content/dam/us-site/aviation/documents/932043_Global_Ku-band_Advanced_Brochure_016_web.pdf.

U.S. Patent No. 7,324,469 (Claim 24)	
Claim 24	Example Southwest Count 5 Systems and Services
	<p>On information and belief, Anuvu functions similarly to Viasat.</p> <p>Our hybrid satellite network combines our own satellites with capacity on over 50 third-party satellites, providing scalable capacity, reliability and redundancy, and cost-effective solutions for our customers.</p> <p>As the industry pioneer in regional Inflight Connectivity and gigabit-class cruise ship connectivity, Anuvu has continuously invested in new technologies to keep pace with end-user expectations. We recognize the importance of reliable, fast, global connectivity for our customers around the world. Our hybrid network, consisting of high-throughput geostationary satellites and 4G/5G mobile connectivity, builds on the industry's first and most capable SD-WAN platform optimized for aviation and maritime applications.</p> <p>96% Anuvu's world satellite coverage</p> <p>1000+ Aircraft connected - the largest[*] domestic single-aisle fleet in the world</p>
[24.b] at least one router operatively coupled to the satellite dish;	<p>Source: https://www.anuvu.com/our-portfolio/connectivity.</p> <p>On information and belief, the Southwest Count 5 Systems and Services include at least one router operatively coupled to the satellite dish.</p> <p>On information and belief, Southwest's aircraft are equipped with Wi-Fi and/or IFC that includes a router that is connected to a satellite antenna mounted about the plane that communicates using a satellite and ground stations.</p> <p>Viasat Select Router Redefining the in-flight connectivity experience</p>

U.S. Patent No. 7,324,469 (Claim 24)	
Claim 24	Example Southwest Count 5 Systems and Services
	 <p>Source: https://www.viasat.com/content/dam/us-site/aviation/documents/Viasat_Select_Router-datasheet.pdf.</p>

U.S. Patent No. 7,324,469 (Claim 24)	
Claim 24	Example Southwest Count 5 Systems and Services
	<p>How it works</p> <p>The service uses satellites to transmit data to and from the aircraft. Passengers connect their devices to the Viasat service through aircraft cabin WiFi distribution similar to how they connect to hotspots on the ground. Data is transmitted between the plane and the ground station through the satellite. As the plane moves through the air, the system automatically performs handovers between coverage areas.</p>  <p>Viasat equipment and network</p> <p>MODEM</p> <p>ANTENNA</p> <p>VIA-SAT SATELLITE NETWORK</p> <p>GATEWAY</p> <p>Source: https://www.viasat.com/content/dam/us-site/aviation/documents/932043_Global_Ku-band_Advanced_Brochure_016_web.pdf</p>

Claim 24	U.S. Patent No. 7,324,469 (Claim 24)
<p>Example Southwest Count 5 Systems and Services</p> <p>Claim 24</p> <p>  </p> <p>Key features at a glance</p> <ul style="list-style-type: none"> <li>> Smart, fully automated, multi-link cabin connectivity management <li>> Integral 4G/LTE cellular data modem for quick and easy remote support <li>> Small form factor, flange mounted, fan-less design for maximum flexibility and ease of installation <li>> Built-in monitoring and diagnostics <li>> Front panel I/O includes dual mini-SIM slot, USB, serial, Ethernet and D-DisplayPort, allowing for easy maintenance access <p>Source: https://www.viasat.com/content/dam/us-site/aviation/documents/Viasat_Select_Router-datasheet.pdf.</p> <p>On information and belief, Southwest offers WiFi solutions (through its IFC providers) that support satellite-based WiFi.</p> <p>We're excited to announce that as of yesterday, March 9, 2023, our first aircraft equipped with hardware from our new WiFi vendor, Viasat, has entered service. Viasat is an industry leader, and we're excited about the increased connectivity and reliability that Viasat will provide. As we prepare for additional Viasat-equipped aircraft deliveries, we're also making significant progress updating our existing fleet with new Anuvu hardware (our original WiFi vendor). We have now upgraded more than 400 aircraft and are well on our way to upgrading the entire fleet by the third quarter of this year.</p> <p>Between our upgraded Anuvu hardware and integration of Viasat, we're bringing a faster, more reliable WiFi experience. In addition to improved WiFi quality, Viasat offers Customers the ability to trade paid internet connectivity between personal devices (known as "device swapping"). For example, if a Customer has paid for Internet using their laptop, they can use the "swap device" function in the Inflight Entertainment Portal to switch connectivity to their phone.</p>	

U.S. Patent No. 7,324,469 (Claim 24)			
Claim 24	Example Southwest Count 5 Systems and Services		
	Anuvu Legacy	Anuvu Upgraded	Viasat
Improved Speeds and Reliability	✗	✓	✓
Streaming (when authenticated for Internet)	✗	✓	✓
Device Swap	✗	✗	✓
Free Entertainment, Texting, and Flight Tracker	✓	✗	✓

Source: <https://www.swamedia.com/southwest-stories/wifi-modernization-first-viasat-aircraft-enters-service-MC5XTXWTLWNESJDQR4LZQBD121>.

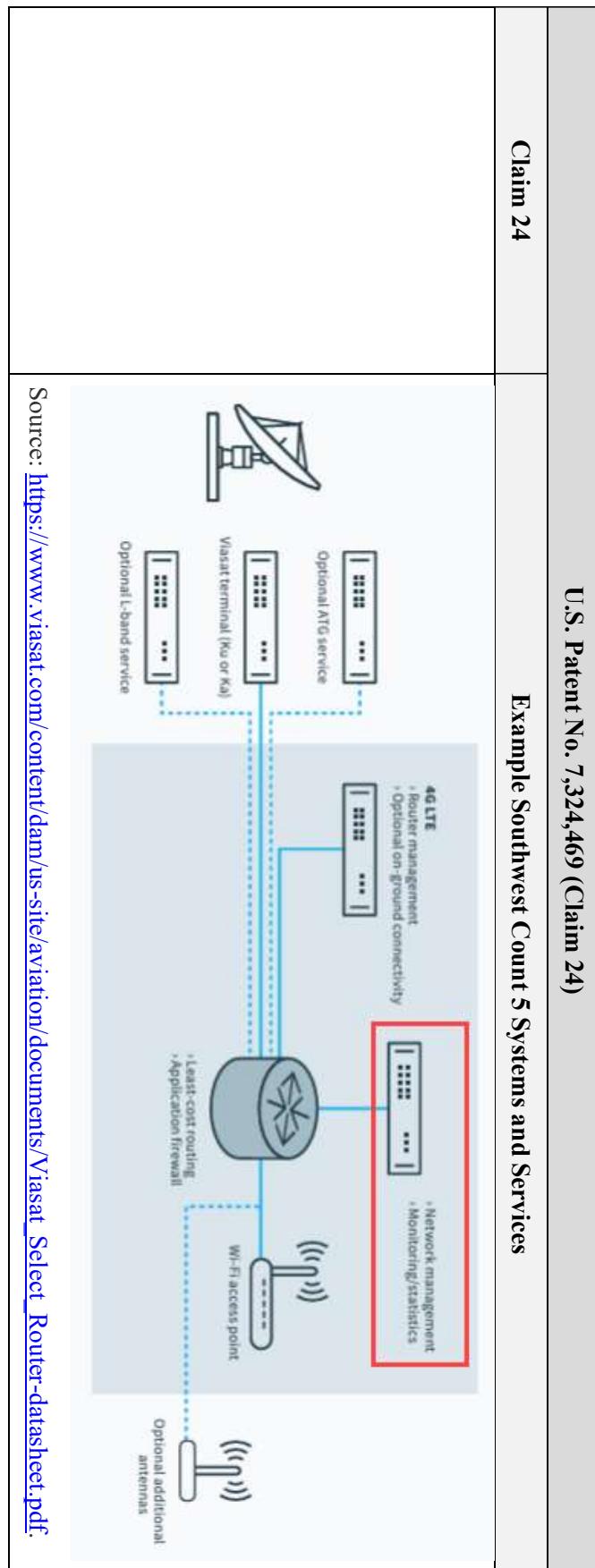
DOES SOUTHWEST USE VIASAT?

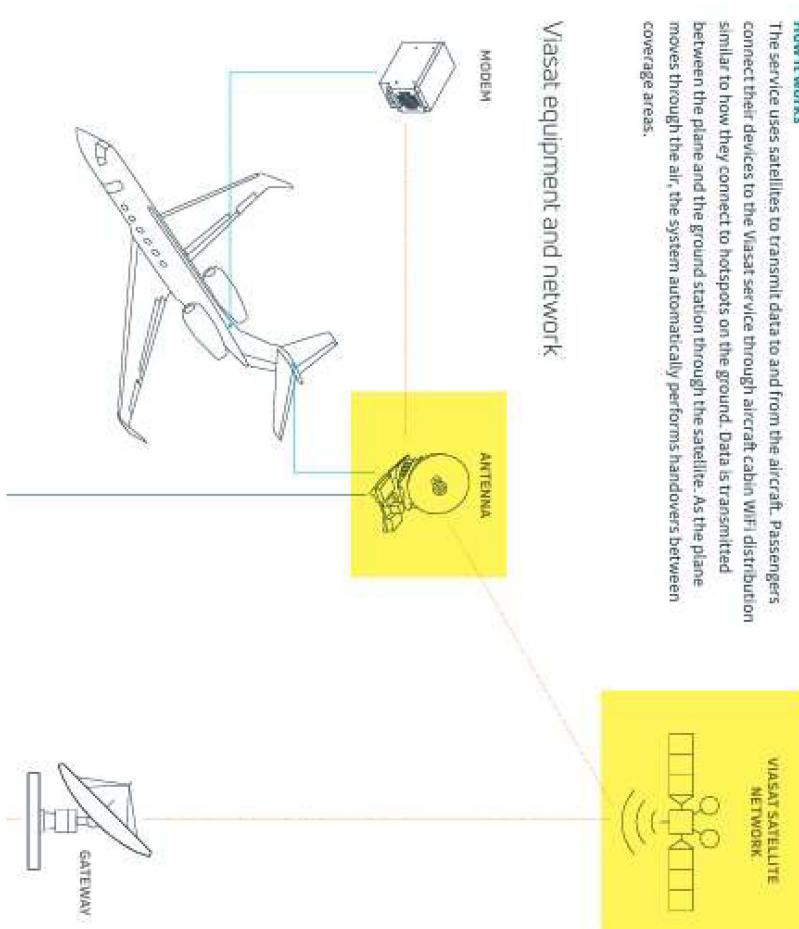
Yes. Southwest airlines announced in March 2023 that new aircraft with the airline will come with factory-installed Wi-Fi connectivity powered by Viasat. The Ka-band connectivity will offer faster, reliable Wi-Fi network connections for Southwest passengers. Viasat currently offers In-Flight Connectivity services to Delta Air Lines, JetBlue, American and United. The first Viasat-equipped aircraft entered service in March 2023 for various North American routes. Viasat is proud to have been selected as the provider in this partnership.

The connectivity will use three large Ka-band satellites, Viasat-1, Viasat-2 and the recently launched Viasat-3 once it completes in-orbit testing, which is expected to be late summer or the fall of 2023. Viasat is a global communications company that provides high-speed satellite internet and other communication services. It operates a satellite network that delivers broadband internet access to residential, commercial, and government customers, particularly in areas where traditional wired internet infrastructure is limited or unavailable.

Source: <https://www.rsinc.com/does-southwest-use-viasat.php>.

U.S. Patent No. 7,324,469 (Claim 24)	
Claim 24	Example Southwest Count 5 Systems and Services
<p>[24.c] a subscriber access unit operatively coupled between the satellite dish and the at least one router, the subscriber access unit being capable of authenticating a subscription account associated with a user prior to allowing the user access to the Internet; and</p>	<p>Our hybrid satellite network combines our own satellites with capacity on over 50 third-party satellites, providing scalable capacity, reliability and redundancy, and cost-effective solutions for our customers.</p> <p>As the industry pioneer in regional inflight connectivity and gigabit-class cruise ship connectivity, Anuvu has continuously invested in new technologies to keep pace with end-user expectations. We recognize the importance of reliable, fast, global connectivity for our customers around the world. Our hybrid network, consisting of high-throughput geostationary satellites and 4G/5G mobile connectivity, builds on the industry's first and most capable SD-WAN platform optimized for aviation and maritime applications.</p> <p>96% Anuvu's world satellite coverage</p> <p>1000+ Aircraft connected - the largest domestic single-aisle fleet in the world</p> <p>Source: https://www.anuvu.com/our-portfolio/connectivity.</p> <p>On information and belief, the Southwest Count 5 Systems and Services include a subscriber access unit operatively coupled between the satellite dish and the at least one router, the subscriber access unit being capable of authenticating a subscription account associated with a user prior to allowing the user access to the Internet. On information and belief, the IFC includes a satellite antenna, multiple WAPs, and an onboard server that host information passenger-focused services.</p>



U.S. Patent No. 7,324,469 (Claim 24)	
Claim 24	Example Southwest Count 5 Systems and Services
	<p>How it works</p> <p>The service uses satellites to transmit data to and from the aircraft. Passengers connect their devices to the Viasat service through aircraft cabin WiFi distribution similar to how they connect to hot-spots on the ground. Data is transmitted between the plane and the ground station through the satellite. As the plane moves through the air, the system automatically performs handovers between coverage areas.</p>  <p>Viasat equipment and network</p> <p>MODEM</p> <p>ANTENNA</p> <p>VIASAT SATELLITE NETWORK</p> <p>GATEWAY</p>

Source: https://www.viasat.com/content/dam/us-site/aviation/documents/932043_Global_Ku-band_Advanced_Brochure_016_web.pdf.

On information and belief, Southwest passengers authenticate themselves on the SouthwestWiFi.com web portal to access in-flight WiFi using on-board server(s). The authentication completes when the user enters their login credentials on the portal. Limited free WiFi is available to passengers, and upgraded high-speed WiFi is available to certain Southwest members or can be purchased.

U.S. Patent No. 7,324,469 (Claim 24)

Claim 24

Example Southwest Count 5 Systems and Services

How to Get Connected ▾



Source: <https://www.southwest.com/inflight-entertainment-portal/>.

During your flight

Head to **Settings**.
Turn on **Airplane mode**.

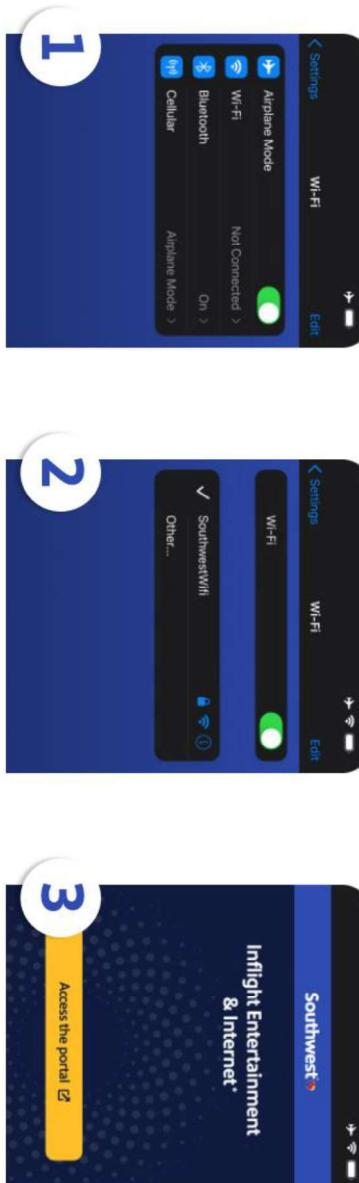
Turn on **WiFi**.
Choose **SouthwestWiFi** from the **WiFi** network list.

Tap **Access the portal** or open **SouthwestWiFi.com** in your browser directly.

- How do I access Inflight Entertainment and Internet options?
- How do I access Free Internet benefits?

Our A-List Preferred Members and Business Select Customers have access to Free Internet. From the hamburger menu, select "A-List Preferred & Business Select" to authorize your device using either your Rapid Rewards information or flight confirmation number. Free Internet may be authorized by A-List Preferred Members and Business Select Customers on up to three devices per flight on their day of travel. A-List Preferred Members who purchase a Business Select Fare may authorize up to six devices per flight on their day of travel.

Source: <https://www.southwest.com/inflight-entertainment-portal/>.

U.S. Patent No. 7,324,469 (Claim 24)	
<p>Claim 24</p> <p>[24.d] a web-ready device operatively coupled to the at least one router, the web-ready device having a browser application operating thereon for accessing the Internet;</p>	<p>Example Southwest Count 5 Systems and Services</p> <p>On information and belief, the Southwest Count 5 Systems and Services include a web-ready device operatively coupled to the at least one router, the web-ready device having a browser application operating thereon for accessing the Internet.</p> <p>On information and belief, Southwest enables access to onboard WiFi through seatback and/or user devices that include a browser application for Internet accessibility.</p> <p>How to Get Connected ^</p>  <p>Source: https://www.southwest.com/inflight-entertainment-portal/.</p> <p>Free Entertainment¹</p> <p>We've got something for everyone. With a wide variety of new releases and long-time customer favorites, all movies are viewable right in your browser - no downloads or sign-ups required!</p> <p>Source: https://www.southwest.com/inflight-entertainment-portal/.</p>

U.S. Patent No. 7,324,469 (Claim 24)	
Claim 24	Example Southwest Count 5 Systems and Services
	<p>Stay Connected¹</p> <p>Keeping you connected to what matters to you—even when you're in the air. Access the portal to enjoy free texting² and \$8 Internet.⁴</p> <p>Free Texting</p>  <p>Keep those texts flying with iMessage and WhatsApp on your personal device. Visit the Texting page in Portal to activate service.</p> <p>\$8 Internet</p>  <p>Go online to check email, browse social media, or snag a dinner reservation for just \$8 (free for our A-List Preferred Members and Business Select Customers) per device from takeoff to landing.</p> <p>Note: In order to provide a better experience, we may prohibit access to certain high-bandwidth applications, websites, and video conferencing services. In consideration of the public environment onboard we may also restrict potentially offensive online content.</p> <p>Source: https://www.southwest.com/inflight-entertainment-portal/.</p> <p>[24.e] wherein the satellite dish, at least one router and the subscriber access unit are located in a remote location a experiencing a relatively high volume of transient traffic; experiencing a relatively high volume of transient traffic;</p>

U.S. Patent No. 7,324,469 (Claim 24)

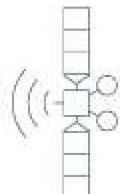
Claim 24

Example Southwest Count 5 Systems and Services

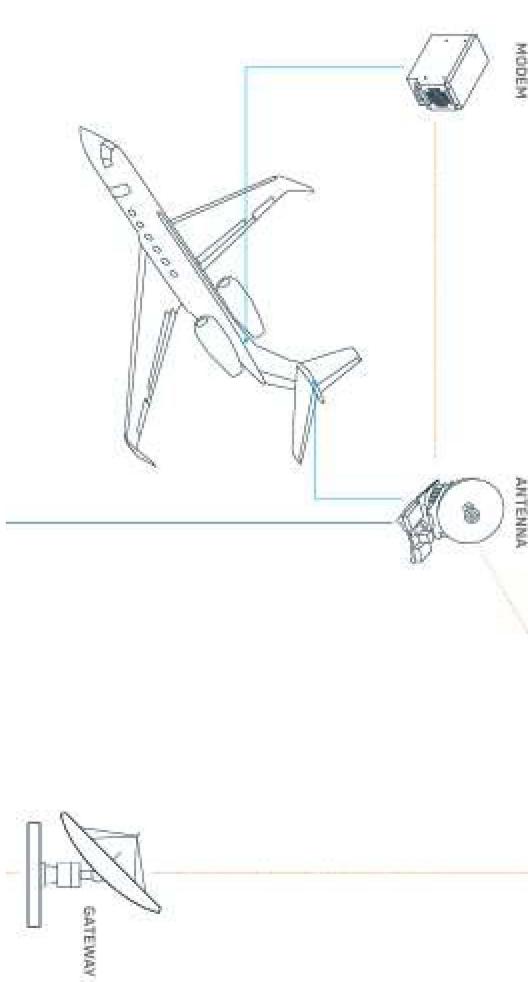
How It Works

The service uses satellites to transmit data to and from the aircraft. Passengers connect their devices to the Viasat service through aircraft cabin WiFi distribution similar to how they connect to hotspots on the ground. Data is transmitted between the plane and the ground station through the satellite. As the plane moves through the air, the system automatically performs handovers between coverage areas.

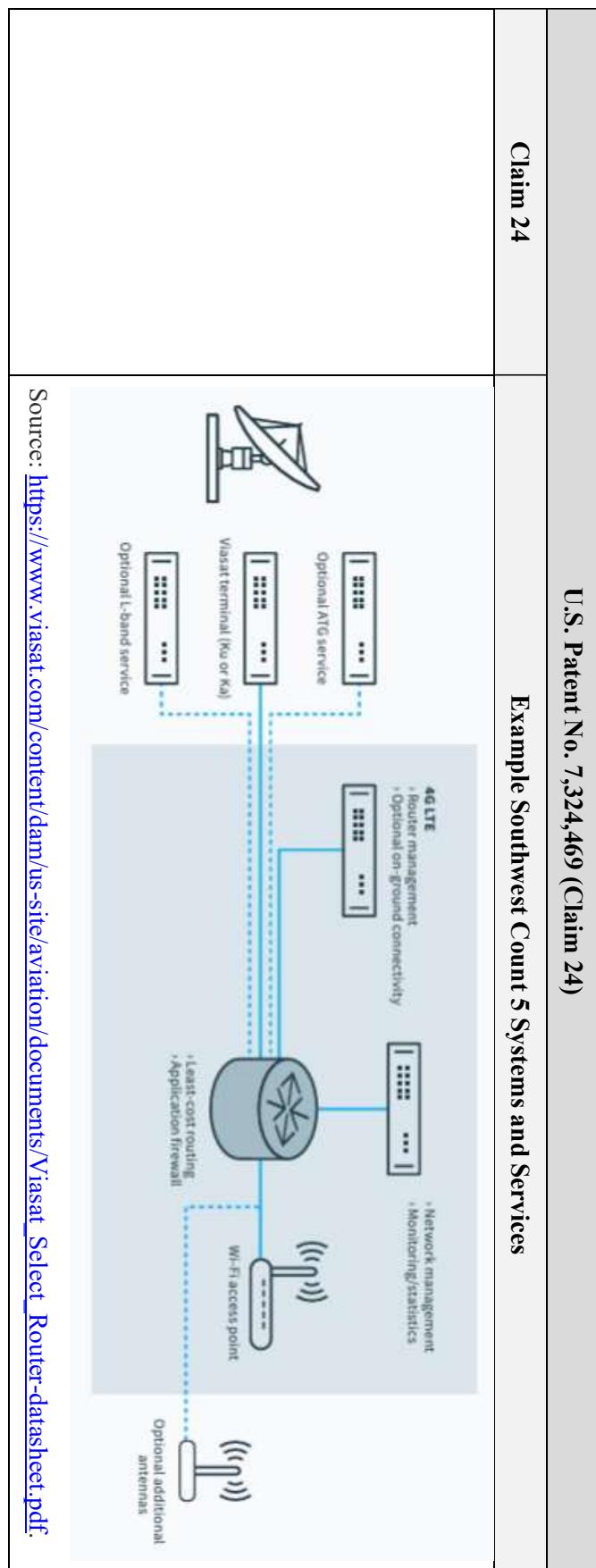
Viasat satellite network

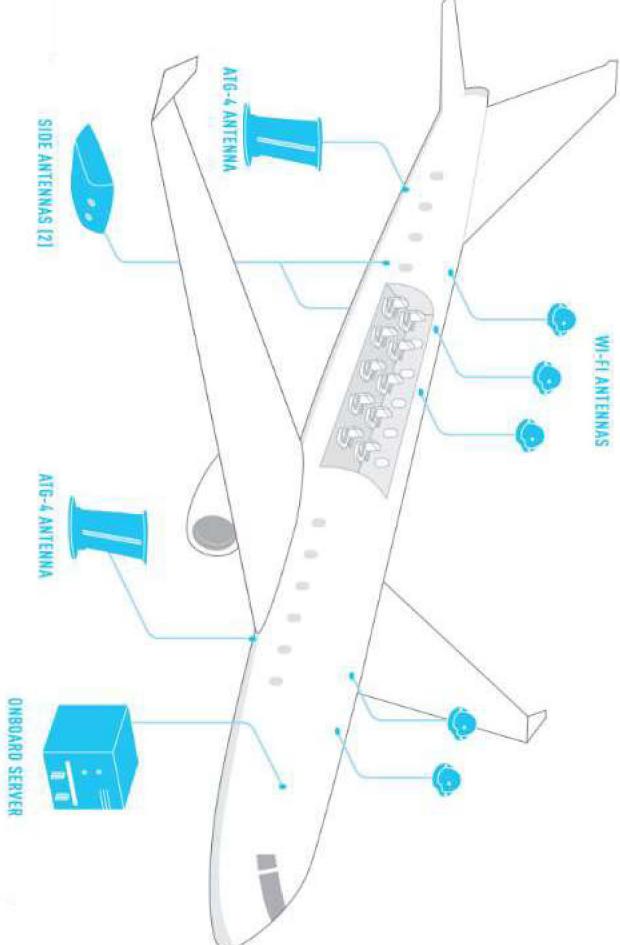


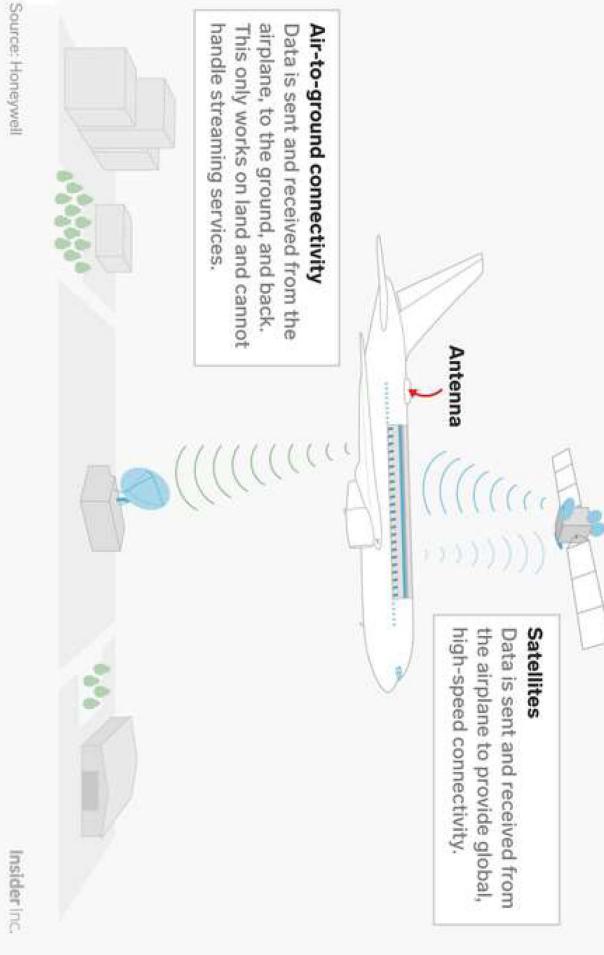
Viasat equipment and network



Source: https://www.viasat.com/content/dam/us-site/aviation/documents/932043_Global_Ku-band_Advanced_Brochure_016_web.pdf.



U.S. Patent No. 7,324,469 (Claim 24)
Claim 24
<p>Example Southwest Count 5 Systems and Services</p>  <p>ATG-4 ANTENNA</p> <p>ATG-4 ANTENNA</p> <p>Wi-Fi ANTENNAS</p> <p>SIDE ANTENNA [2]</p> <p>ONBOARD SERVER</p>
Source: https://onezero.medium.com/what-makes-it-possible-to-browse-the-internet-at-35-000-feet-1aafa83eb5 .

U.S. Patent No. 7,324,469 (Claim 24)	Example Southwest Count 5 Systems and Services
Claim 24	
<p>Two different ways WiFi works on airplanes</p>  <p>Air-to-ground connectivity Data is sent and received from the airplane, to the ground, and back. This only works on land and cannot handle streaming services.</p> <p>Satellites Data is sent and received from the airplane to provide global, high-speed connectivity.</p> <p>Source: https://www.businessinsider.com/how-airplane-wifi-works-2018-9.</p>	

U.S. Patent No. 7,324,469 (Claim 24)

Claim 24

Example Southwest Count 5 Systems and Services

Southwest Airlines fleet				Notes
Aircraft	In service	Orders	Passengers	
Boeing 737-700	374	—	143	Launch customer and largest operator. ^[15] Older aircraft to be replaced by Boeing 737 MAX 7.
Boeing 737-800	205	—	175	To be replaced by Boeing 737 MAX 8.
Boeing 737 MAX 7	—	307	150 ^[33]	Deliveries begin in 2025. ^[34] To replace older Boeing 737-700s. ^[35]
Boeing 737 MAX 8	239	166	175	Largest Boeing 737 MAX operator. To replace Boeing 737-700s. ^[35]
Total	818	473		

Source: https://en.wikipedia.org/wiki/Southwest_Airlines_fleet.

[24.f] wherein the user may authenticate the subscription account and access the Internet at the remote location by establishing a data connection between the web-ready device and the router.

On information and belief, the Southwest Count 5 Systems and Services include WiFi where the user may authenticate the subscription account and access the Internet at the remote location by establishing a data connection between the web-ready device and the router.

On information and belief, Southwest passengers authenticate themselves on the SouthwestWiFi.com web portal to access in-flight WiFi. The authentication completes when the user enters their login credentials on the portal through seatback and/or user devices. Limited free WiFi is available to passengers, and upgraded high-speed WiFi is available to certain Southwest members or can be purchased.

U.S. Patent No. 7,324,469 (Claim 24)

Claim 24

Example Southwest Count 5 Systems and Services

How to Get Connected ^



Source: <https://www.southwest.com/inflight-entertainment-portal/>.

During your flight

How do I access Inflight Entertainment and Internet options?

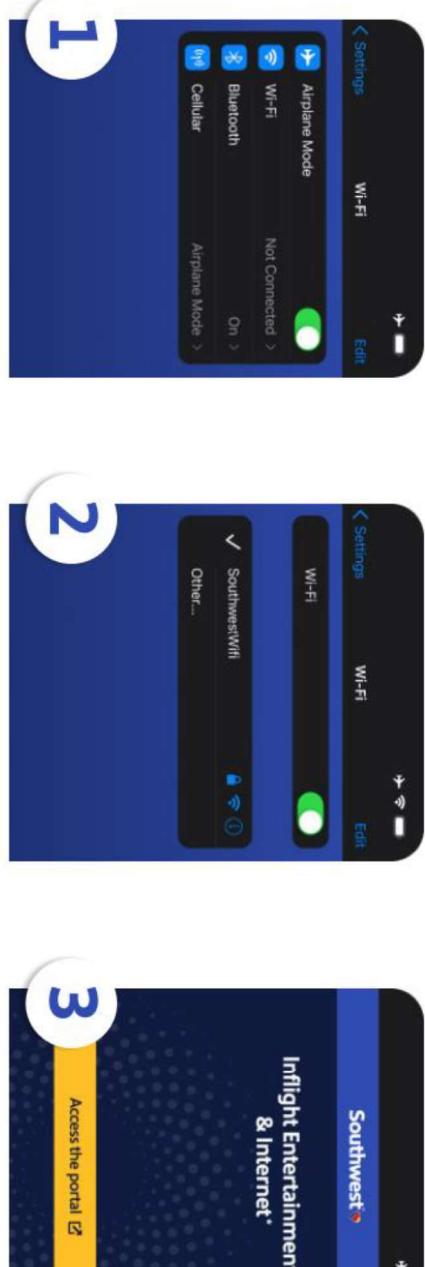
How do I access Free Internet benefits?

Our A-List Preferred Members and Business Select Customers have access to Free Internet. From the hamburger menu, select "A-List Preferred & Business Select" to authorize your device using either your Rapid Rewards information or flight confirmation number.

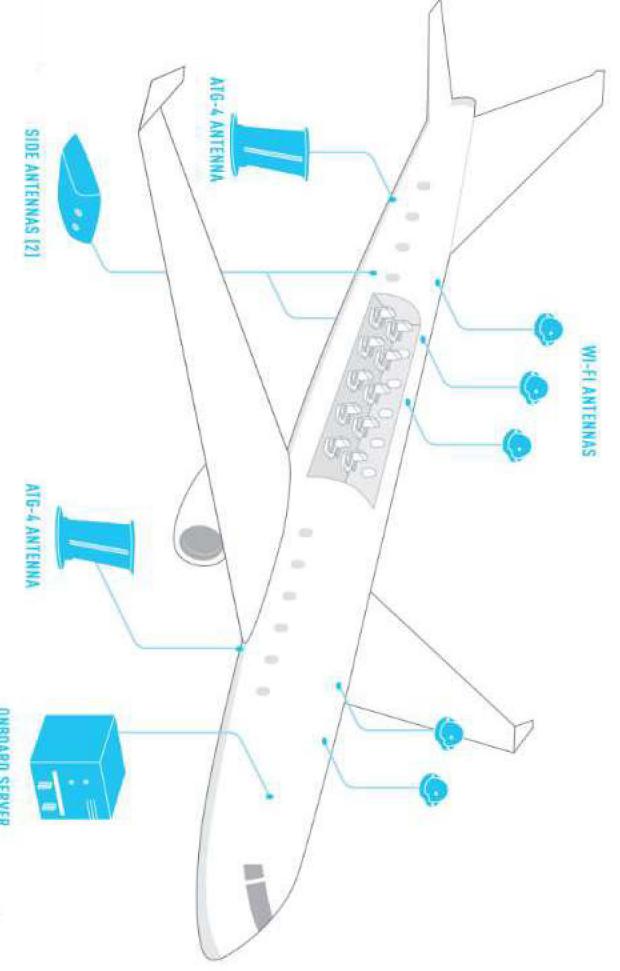
Free Internet may be authorized by A-List Preferred Members and Business Select Customers on up to three devices per flight on their day of travel. A-List Preferred Members who purchase a Business Select Fare may authorize up to six devices per flight on their day of travel.

Source: <https://www.southwest.com/inflight-entertainment-portal/>.

On information and belief, upon authentication the user may access the Internet through onboard WiFi, where a connection is established with onboard software and/or hardware including a router.

Claim 24	U.S. Patent No. 7,324,469 (Claim 24) Example Southwest Count 5 Systems and Services
	<p>How to Get Connected ^</p>  <p>1 Head to Settings. Turn on Airplane mode.</p> <p>2 Turn on WiFi. Choose SouthwestWiFi from the WiFi network list.</p> <p>3 Access the portal .</p> <p>Free Entertainment¹</p> <p>We've got something for everyone. With a wide variety of new releases and long-time Customer favorites, all movies are viewable right in your browser no downloads or sign-ups required!</p> <p>Source: https://www.southwest.com/inflight-entertainment-portal/.</p> <p>Source: https://www.southwest.com/.</p>

U.S. Patent No. 7,324,469 (Claim 24)	
Claim 24	Example Southwest Count 5 Systems and Services
	<p>Stay Connected¹</p> <p>Keeping you connected to what matters to you—even when you're in the air. Access the portal to enjoy free texting² and \$8 Internet.⁴</p> <p>Free Texting</p>  <p>Keep those texts flying with iMessage and WhatsApp on your personal device. Visit the Texting page in Portal to activate service.</p> <p>\$8 Internet</p>  <p>Go online to check email, browse social media, or snag a dinner reservation for just \$8 (free for our A-List Preferred Members and Business Select Customers) per device from takeoff to landing.</p> <p>Note: In order to provide a better experience, we may prohibit access to certain high-bandwidth applications, websites, and video conferencing services. In consideration of the public environment onboard we may also restrict potentially offensive online content.</p> <p>Source: https://www.southwest.com/inflight-entertainment-portal/.</p>

Claim 24	U.S. Patent No. 7,324,469 (Claim 24)
<p>Example Southwest Count 5 Systems and Services</p>  <p>Source: https://onezero.medium.com/what-makes-it-possible-to-browse-the-internet-at-35-000-feet-1aafa83eb5.</p> <p>On information and belief, Southwest offers WiFi solutions on its airplanes that support satellite-based WiFi.</p>	

U.S. Patent No. 7,324,469 (Claim 24)			
Claim 24	Example Southwest Count 5 Systems and Services		
	Anuvu Legacy	Anuvu Upgraded	Viasat
Improved Speeds and Reliability	✗	✓	✓
Streaming (when authenticated for Internet)	✗	✓	✓
Device Swap	✗	✗	✗
Free Entertainment, Texting, and Flight Tracker	✓	✗	✓

Source: <https://www.swamedia.com/southwest-stories/wifi-modernization-first-viasat-aircraft-enters-service-MC5XTXWTTLWNESJDQR4LZQBD121>.

DOES SOUTHWEST USE VIASAT?

Yes. Southwest airlines announced in March 2023 that new aircraft with the airline will come with factory-installed Wi-Fi connectivity powered by Viasat. The Ka-band connectivity will offer faster, reliable Wi-Fi network connections for Southwest passengers. Viasat currently offers In-Flight Connectivity services to Delta Air Lines, JetBlue, American and United. The first Viasat-equipped aircraft entered service in March 2023 for various North American routes. Viasat is proud to have been selected as the provider in this partnership.

The connectivity will use three large Ka-band satellites, Viasat-1, Viasat-2 and the recently launched Viasat-3 once it completes in-orbit testing, which is expected to be late summer or the fall of 2023. Viasat is a global communications company that provides high-speed satellite internet and other communication services. It operates a satellite network that delivers broadband internet access to residential, commercial, and government customers, particularly in areas where traditional wired internet infrastructure is limited or unavailable.

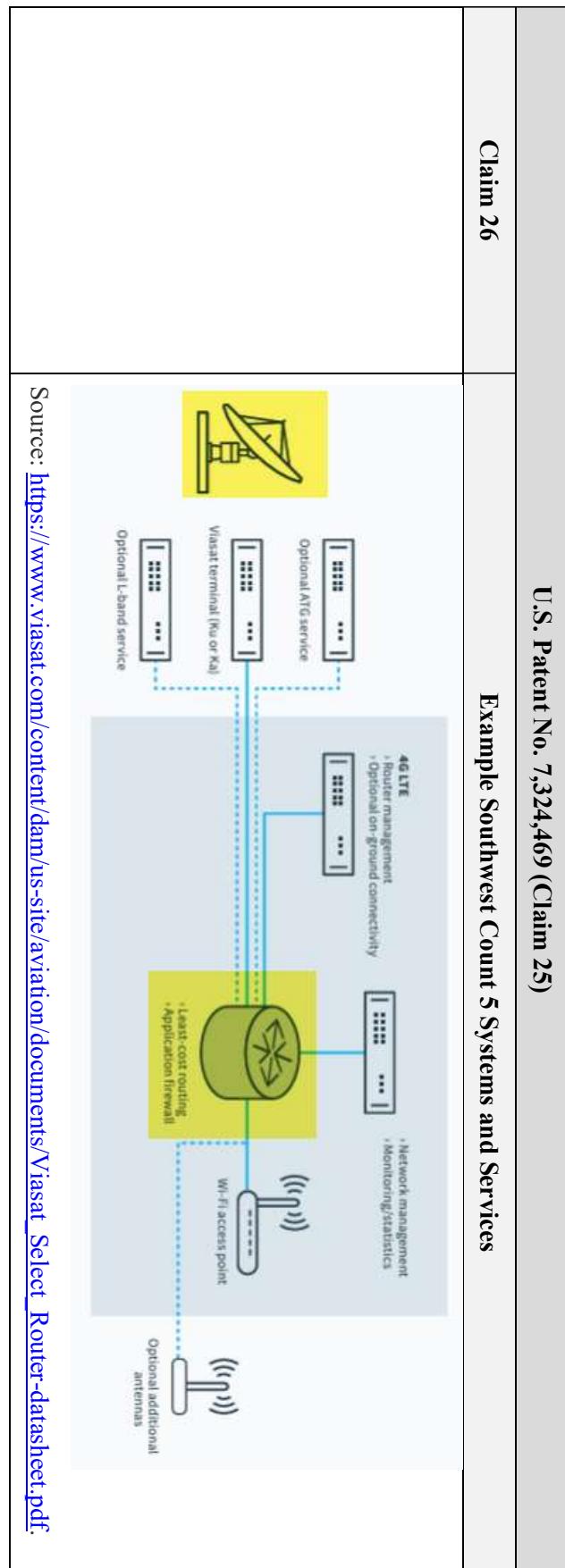
Source: <https://www.rsinc.com/does-southwest-use-viasat.php>.

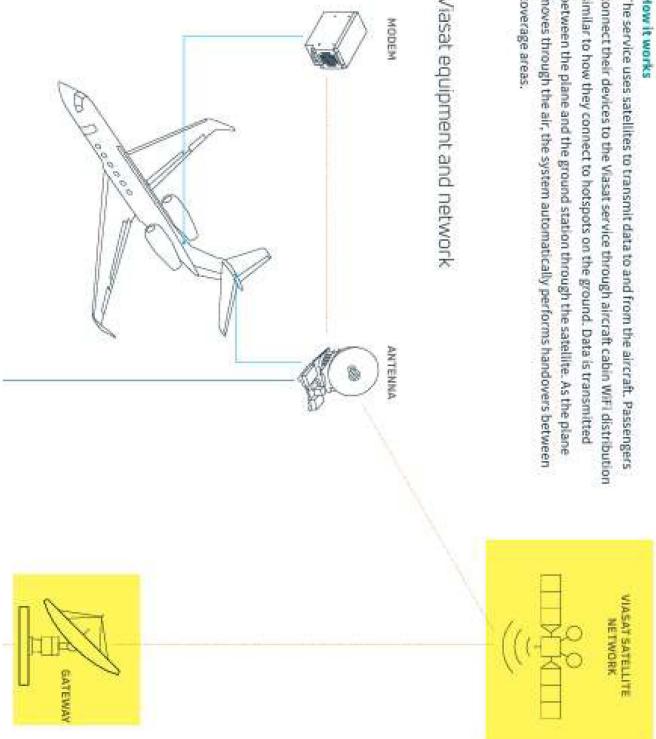
U.S. Patent No. 7,324,469 (Claim 24)	
Claim 24	Example Southwest Count 5 Systems and Services
	<p>Our hybrid satellite network combines our own satellites with capacity on over 50 third-party satellites, providing scalable capacity, reliability and redundancy, and cost-effective solutions for our customers.</p> <p>As the industry pioneer in regional Inflight Connectivity and gigabit-class cruise ship connectivity, Anuvu has continuously invested in new technologies to keep pace with end-user expectations. We recognize the importance of reliable, fast, global connectivity for our customers around the world. Our hybrid network, consisting of high-throughput geostationary satellites and 4G/5G mobile connectivity, builds on the industry's first and most capable SD-WAN platform optimized for aviation and maritime applications.</p> <p>96% Anuvu's world satellite coverage</p> <p>1000+ Aircraft connected - the largest domestic single-aisle fleet in the world</p>
Claim 25	<p>U.S. Patent No. 7,324,469 (Claim 25)</p> <p>Example Southwest Count 5 Systems and Services</p> <p>[25] The Internet Hotspot of claim 24, wherein the data connection is one of a wired data connection and a wireless data connection.</p> <p>For example, for WiFi-enabled aircraft, Southwest offers Internet service that enables its customers to access data including flight tracker, text, video, and other content that is available over a wireless connection.</p>

Claim 25	U.S. Patent No. 7,324,469 (Claim 25)
<p>Example Southwest Count 5 Systems and Services</p> <p>What entertainment and connectivity does Southwest offer?</p> <p>Our Inflight Entertainment Portal¹ features a flight tracker, texting², movies, TV series on demand, and live TV³—all for free! Or purchase Internet⁴ to browse and stream from popular services for \$8 per device from takeoff to landing.</p> <p>Our A-List Preferred Members and Business Select Customers have access to Free Internet. Free Internet may be authorized by A-List Preferred Members and Business Select Customers on up to three devices per flight on their day of travel. A-List Preferred Members who purchase a Business Select Fare may authorize up to six devices per flight on their day of travel.</p> <p><small>¹ Where available. Available only on WiFi-enabled aircraft. Limited-time offer. ² Texting only allows access to iMessage and WhatsApp (which must be downloaded and activated before connecting to SouthwestWiFi). ³ Due to licensing restrictions, free live TV may not be available onboard WiFi-enabled international flights. ⁴ Internet access for \$8 per device from takeoff to landing. Price is subject to change. May not be available for the full duration of flight. In order to provide a top-notch internet experience, we prohibit access to certain high-bandwidth applications and websites. We also prohibit access to certain obscene or offensive content.</small></p> <p>Source: https://www.southwest.com/inflight-entertainment-portal/.</p> <p>How to Get Connected</p> <ol style="list-style-type: none"> <li>1 <li>2 <li>3 <p><small>Head to Settings. Turn on Airplane mode.</small></p> <p><small>Turn on WiFi. Choose SouthwestWiFi from the WiFi network list.</small></p> <p>Source: https://www.southwest.com/inflight-entertainment-portal/.</p> <p><i>See also claim 24.</i></p>	<p>U.S. Patent No. 7,324,469 (Claim 25)</p> <p>Example Southwest Count 5 Systems and Services</p> <p>What entertainment and connectivity does Southwest offer?</p> <p>Our Inflight Entertainment Portal¹ features a flight tracker, texting², movies, TV series on demand, and live TV³—all for free! Or purchase Internet⁴ to browse and stream from popular services for \$8 per device from takeoff to landing.</p> <p>Our A-List Preferred Members and Business Select Customers have access to Free Internet. Free Internet may be authorized by A-List Preferred Members and Business Select Customers on up to three devices per flight on their day of travel. A-List Preferred Members who purchase a Business Select Fare may authorize up to six devices per flight on their day of travel.</p> <p><small>¹ Where available. Available only on WiFi-enabled aircraft. Limited-time offer. ² Texting only allows access to iMessage and WhatsApp (which must be downloaded and activated before connecting to SouthwestWiFi). ³ Due to licensing restrictions, free live TV may not be available onboard WiFi-enabled international flights. ⁴ Internet access for \$8 per device from takeoff to landing. Price is subject to change. May not be available for the full duration of flight. In order to provide a top-notch internet experience, we prohibit access to certain high-bandwidth applications and websites. We also prohibit access to certain obscene or offensive content.</small></p> <p>Source: https://www.southwest.com/inflight-entertainment-portal/.</p> <p>How to Get Connected</p> <ol style="list-style-type: none"> <li>1 <li>2 <li>3 <p><small>Head to Settings. Turn on Airplane mode.</small></p> <p><small>Turn on WiFi. Choose SouthwestWiFi from the WiFi network list.</small></p> <p>Source: https://www.southwest.com/inflight-entertainment-portal/.</p> <p><i>See also claim 24.</i></p>

U.S. Patent No. 7,324,469 (Claim 25)	
Claim 26	Example Southwest Count 5 Systems and Services
<p>[26] The Internet Hotspot of claim 24, wherein a plurality of users may access the Internet simultaneously at the remote location by respectively establishing data connections with the router via their web-ready devices.</p>	<p>On information and belief, the Southwest Count 5 Systems and Services include an Internet Hotspot as recited in claim 24. <i>See</i> claim 24. On information and belief, the Southwest Count 5 Systems and Services further provide that a plurality of users may access the Internet simultaneously at the remote location by respectively establishing data connections with the router via their web-ready devices.</p> <p>For example, for WiFi-enabled aircraft, Southwest offers Internet service that enables its customers to access data including flight tracker, text, video, and other content that is available over a wireless connection. On information and belief, multiple customers can access the Internet simultaneously during a flight, in part through a router.</p> <p>What entertainment and connectivity does Southwest offer?</p> <p>Our Inflight Entertainment Portal¹ features a flight tracker, texting², movies, TV series on demand, and live TV³—all for free! Or purchase Internet⁴ to browse and stream from popular services for \$8 per device from takeoff to landing.</p> <p>Our A-List Preferred Members and Business Select Customers have access to Free Internet. Free Internet may be authorized by A-List Preferred Members and Business Select Customers on up to three devices per flight on their day of travel. A-List Preferred Members who purchase a Business Select Fare may authorize up to six devices per flight on their day of travel.</p> <p><small>¹ WiFi available. Available only on WiFi-enabled aircraft. ² Limited-time offer. ³ Texting only allows access to iMessage and WhatsApp (which must be downloaded and activated before connecting to Southwest WiFi). ⁴ Due to licensing restrictions, free live TV may not be available onboard WiFi-enabled international flights.</small></p> <p>⁴ Internet access for \$8 per device from takeoff to landing. Price is subject to change. May not be available for the full duration of flight. In order to provide a top-notch Internet experience, we prohibit access to certain high-bandwidth applications and websites. We also prohibit access to certain obscene or offensive content.</p> <p>Source: https://www.southwest.com/inflight-entertainment-portal/.</p>

U.S. Patent No. 7,324,469 (Claim 25)	
Claim 26	<p>Example Southwest Count 5 Systems and Services</p> <p>How to Get Connected ^</p>  <p>Source: https://www.southwest.com/inflight-entertainment-portal/.</p> <p>Free Entertainment¹</p> <p>We've got something for everyone. With a wide variety of new releases and long-time Customer favorites, all movies are viewable right in your browser - no downloads or sign-ups required!</p> <p>Source: https://www.southwest.com/inflight-entertainment-portal/.</p> <p>On information and belief, Southwest's aircraft are equipped with WiFi and/or IFC that includes a router that communicate with user devices that are able to access Southwest provided WiFi service.</p> <p>Viasat Select Router</p> <p>Redefining the in-flight connectivity experience</p>



U.S. Patent No. 7,324,469 (Claim 25)	
Claim 26	Example Southwest Count 5 Systems and Services
	<p>How it works</p> <p>The service uses satellites to transmit data to and from the aircraft. Passengers connect their devices to the Viasat service through aircraft cabin WiFi distribution similar to how they connect to hotspots on the ground. Data is transmitted between the plane and the ground station through the satellite. As the plane moves through the air, the system automatically performs handovers between coverage areas.</p>  <p>Viasat equipment and network</p> <p>MODEM</p> <p>ANTENNA</p> <p>VIASAT SATELLITE NETWORK</p> <p>GATEWAY</p> <p>Source: https://www.viasat.com/content/dam/us-site/aviation/documents/932043_Global_Ku-band_Advanced_Brochure_016_web.pdf</p>

U.S. Patent No. 7,324,469 (Claim 25)	
Claim 26	Example Southwest Count 5 Systems and Services
	<p>Key features at a glance</p> <ul style="list-style-type: none"> › Smart, fully automated, multi-link cabin connectivity management › Integral 4G/LTE cellular data modem for quick and easy remote support › Small form factor, flange mounted, fan-less design for maximum flexibility and ease of installation › Built-in monitoring and diagnostics › Front panel I/O includes dual mini-SIM slot, USB, serial, Ethernet and D-DisplayPort allowing for easy maintenance access <p>Source: https://www.viasat.com/content/dam/us-site/aviation/documents/Viasat_Select_Router-datasheet.pdf.</p> <p><i>See also</i> claim 24.</p>

U.S. Patent No. 7,324,469 (Claim 28)

Claim 28	Example Southwest Count 5 Systems and Services
[28] The Internet Hotspot of claim 26, wherein the data connections include wireless data connections.	<p>On information and belief, the Southwest Count 5 Systems and Services include an Internet Hotspot as recited in claim 26. <i>See</i> claim 26. On information and belief, the Southwest Count 5 Systems and Services further include the data connections that include wireless data connections.</p> <p>For example, WiFi-enabled aircraft, Southwest offers Internet service that enables its customers to access data including flight tracker, text, video, and other content that is available over a wireless connection.</p>

Claim 28	U.S. Patent No. 7,324,469 (Claim 28)
Example Southwest Count 5 Systems and Services	
<p>What entertainment and connectivity does Southwest offer?</p> <p>Our Inflight Entertainment Portal¹ features a flight tracker, texting², movies, TV series on demand, and live TV³—all for free! Or purchase Internet⁴ to browse and stream from popular services for \$8 per device from takeoff to landing.</p> <p>Our A-List Preferred Members and Business Select Customers have access to Free Internet. Free Internet may be authorized by A-List Preferred Members and Business Select Customers on up to three devices per flight on their day of travel. A-List Preferred Members who purchase a Business Select Fare may authorize up to six devices per flight on their day of travel.</p> <p><small>¹ Where available. Available only on WiFi-enabled aircraft. Limited-time offer. ² Texting only allows access to iMessage and WhatsApp (which must be downloaded and activated before connecting to SouthwestWiFi). ³ Due to licensing restrictions, free live TV may not be available on board WiFi-enabled international flights. ⁴ Internet access for \$8 per device from takeoff to landing. Price is subject to change. May not be available for the full duration of flight. In order to provide a top-notch internet experience, we prohibit access to certain high-bandwidth applications and websites. We also prohibit access to certain obscene or offensive content.</small></p> <p>Source: https://www.southwest.com/inflight-entertainment-portal/.</p> <p>How to Get Connected ▾</p>  <p>1 Head to Settings. Turn on Airplane mode.</p> <p>2 Turn on WiFi. Choose SouthwestWiFi from the WiFi network list.</p> <p>3 Tap Access the portal or open SouthwestWiFi.com in your browser directly.</p> <p>Source: https://www.southwest.com/inflight-entertainment-portal/.</p> <p>See also claim 24.</p>	<p>U.S. Patent No. 7,324,469 (Claim 28)</p> <p>Example Southwest Count 5 Systems and Services</p> <p>What entertainment and connectivity does Southwest offer?</p> <p>Our Inflight Entertainment Portal¹ features a flight tracker, texting², movies, TV series on demand, and live TV³—all for free! Or purchase Internet⁴ to browse and stream from popular services for \$8 per device from takeoff to landing.</p> <p>Our A-List Preferred Members and Business Select Customers have access to Free Internet. Free Internet may be authorized by A-List Preferred Members and Business Select Customers on up to three devices per flight on their day of travel. A-List Preferred Members who purchase a Business Select Fare may authorize up to six devices per flight on their day of travel.</p> <p><small>¹ Where available. Available only on WiFi-enabled aircraft. Limited-time offer. ² Texting only allows access to iMessage and WhatsApp (which must be downloaded and activated before connecting to SouthwestWiFi). ³ Due to licensing restrictions, free live TV may not be available on board WiFi-enabled international flights. ⁴ Internet access for \$8 per device from takeoff to landing. Price is subject to change. May not be available for the full duration of flight. In order to provide a top-notch internet experience, we prohibit access to certain high-bandwidth applications and websites. We also prohibit access to certain obscene or offensive content.</small></p> <p>Source: https://www.southwest.com/inflight-entertainment-portal/.</p> <p>How to Get Connected ▾</p>  <p>1 Head to Settings. Turn on Airplane mode.</p> <p>2 Turn on WiFi. Choose SouthwestWiFi from the WiFi network list.</p> <p>3 Tap Access the portal or open SouthwestWiFi.com in your browser directly.</p> <p>Source: https://www.southwest.com/inflight-entertainment-portal/.</p> <p>See also claim 24.</p>

U.S. Patent No. 7,324,469 (Claim 32)	
Claim 32	Example Southwest Count 5 Systems and Services
[32] The Internet Hotspot of claim 25, wherein the wireless connection is one of an 802.11a wireless area network, an 802.11b wireless area network, an 802.11g wireless area network, and an 802.11n wireless area network.	<p>On information and belief, the Southwest Count 5 Systems and Services include an Internet Hotspot as recited in claim 32. <i>See</i> claim 32. On information and belief, the Southwest Count 5 Systems and Services further include the wireless connection that is one of an 802.11a wireless area network, an 802.11b wireless area network, an 802.11g wireless area network, and an 802.11n wireless area network.</p> <p>For example, on information and belief, the specification for version 802.11n was released in approximately 2009. Source: https://www.techtarget.com/searchmobilecomputing/definition/80211n.</p> <p>On information and belief, devices that support newer WiFi standards are backwards compatible with earlier standards, such as version 802.11n.</p>

Wi-Fi 6 Compatibility

When you are considering [upgrading your routers](#), it's a good idea to factor in Wi-Fi 6 compatibility with your older equipment and devices. Wi-Fi 6-compatible devices must work with other equipment. Is Wi-Fi 6 backward compatible, and will current devices work with it? The good news: Wi-Fi 6 routers are completely backward compatible with all older Wi-Fi devices that support earlier versions, including 802.11 ac/n/g/b/a.

Source: <https://www.digi.com/blog/post/wi-fi-6-compatible-devices-and-their-use-cases>.

On information and belief, Southwest offers Internet service include wireless connections. *See* claims 25, 28. On information and belief, Southwest's Internet service including wireless connections support 802.11n wireless networks, including end user devices that are compatible with 802.11n and use that network for Internet connectivity. *See* infra claim 32. *See also*:

Source: <https://www.techtarget.com/searchmobilecomputing/definition/80211n>.

Source: <https://www.digi.com/blog/post/wi-fi-6-compatible-devices-and-their-use-cases>.